



*U.S. Department of Energy  
and the  
National Science Foundation*



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Professor Abraham Seiden  
Chair, P5 Subpanel of HEPAP  
University of California, Santa Cruz  
1156 High Street  
Santa Cruz, California 95064

Dear Professor Seiden:

We would like to thank you and all the members of your P5 Subpanel for the hard work that you have already devoted to addressing the first set of questions that we asked you concerning the Tevatron and PEP-II programs. Your thoughtful advice will be extremely useful in our planning and will help us make the most of our physics program over the next few years.

We would now like to return to the original goal of P5. We would like you to propose a detailed roadmap for the U.S. high energy physics program for the period of roughly the next ten years, with particular focus on the decisions needed in the next five years, and mindful of the international context. This roadmap should lay out the most compelling scientific opportunities that can be addressed in that timeframe. In addition, we would like a specific prioritization of the major elements of the roadmap. This prioritization should assume a future yearly budget envelope which will be provided by the funding agencies. It should focus upon maximizing the physics return within the constraints, prioritizing the following elements as potential areas of study:

- Operations of existing facilities, consistent with your recommendations concerning the Tevatron and PEP-II
- U.S. contributions to LHC operations, computing, and upgrades
- The elements of a neutrino program under consideration by the Neutrino Scientific Assessment Group (NuSAG), including: neutrinoless double beta decay experiments, reactor experiments, off-axis detectors, and high intensity, long-baseline neutrino experiments.
- International Linear Collider
- Deep Underground Science and Engineering Laboratory (DUSEL) and associated scientific experiments
- Next-generation dark matter experiments
- Dark energy experiments

- Other major proposals which the agencies request to be included.

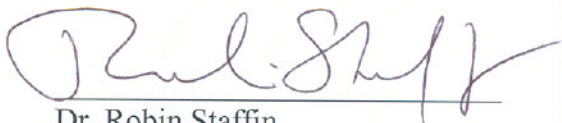
It is clear that all of the above initiatives are scientifically excellent, but that taken together, they will more than saturate the available resources; while all routes on the roadmap should be quite interesting, not all will be taken. The prioritization should therefore recommend, on the basis of their relative scientific merit, the relative priority and time ordering of projects; suggest which ones may require additional funding; and lay out decision points. You should consider the scientific potential of each initiative, the timeliness of its scientific output together with the likely costs to the U.S., and how well it fits into a coherent program (including the evolution of our facilities infrastructure). Where relevant, the Subpanel should consider the impact of potential program decisions taken elsewhere within the international HEP community, their relation to the programs of related fields such as nuclear physics and astrophysics, and their broader impact on science and society. The forthcoming National Academy of Sciences' EPP 2010 committee (Elementary Particle Physics in the 21<sup>st</sup> Century) will provide important strategic context to your roadmap, as well as other Scientific Advisory Groups that are assisting the High Energy Physics Advisory Panel (HEPAP) and the Astronomy and Astrophysics Advisory Committee (AAAC).

We will be happy to provide any additional information needed on schedules and costs of the various initiatives in each of these areas and any other information such as driving factors of our facilities infrastructure.

The DOE and the NSF would like a draft report regarding the prioritized projects and programs along with an updated roadmap for the U.S. particle physics program, by July 2006 with a final report by September 2006.

Thank you in advance for your dedication to addressing these important and challenging questions.

Sincerely,



Dr. Robin Staffin  
Associate Director  
Office of High Energy Physics  
Office of Science  
Department of Energy



Dr. Michael Turner  
Assistant Director  
Mathematical and Physical Sciences  
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